

WHAT IS CLAIMED IS:

- 1 1. A mail processing apparatus comprising:
2 a paper feeding mechanism that is adapted to feed sheets of paper;
3 a collection bin that is adapted to receive the sheets of paper from the
4 paper feeding mechanism in a stack;
5 a retrieval mechanism that is configured to move a bottom one of said
6 sheets of paper from the stack; and
7 a deionizer that is adapted to reduce static electricity in the vicinity of
8 the stack to facilitate removal by the retrieval mechanism of only one of said sheets of paper
9 at a time.
- 1 2. The mail processing apparatus as in claim 1 wherein said deionizer
2 comprises a deionizing static bar.
- 1 3. The mail processing apparatus as in claim 1 wherein said deionizer is
2 positioned so that said sheets fed by said paper feeding mechanism pass over said deionizer
3 as said sheets are received by said collection bin.
- 1 4. The mail processing apparatus as in claim 1 wherein said retrieval
2 mechanism comprises a roller.
- 1 5. The mail processing apparatus as in claim 1 wherein said collection
2 bin further comprises at least one foot, said foot for facilitating the removal of only said one
3 sheet by stripping off adjacent sheets from said one sheet.
- 1 6. The mail processing apparatus as in claim 1 further comprising a
2 printer that is adapted to print alpha-numeric characters on said sheets prior to said sheets
3 being fed by said paper feeding mechanism.
- 1 7. The mail processing apparatus as in claim 1 further comprising a card
2 attachment mechanism for attaching a card to said one sheet.
- 1 8. The mail processing apparatus as in claim 1 further comprising a sheet
2 folding mechanism for folding said one sheet.
- 1 9. A method of processing mail, said method comprising:

2 providing a plurality of sheets of paper;
3 feeding said sheets of paper sequentially into a collection bin to form a
4 stack, said collection bin comprising a deionizer that is adapted to reduce static electricity in
5 the vicinity of the stack; and
6 retrieving a bottom one of said sheets of paper from the stack with a
7 retrieval mechanism.

1 10. The method as in claim 9 wherein said deionizer comprises a static bar,
2 and wherein said feeding comprises sequentially passing said sheets over said static bar.

1 11. A mail processing apparatus comprising:
2 a track over which paper sheets are adapted to pass in sequence;
3 a moving mechanism that is adapted to move the sheets along the
4 track; and
5 an inserting mechanism that is adapted to add an insert to one of the
6 sheets while on the track, wherein the inserting mechanism includes;
7 a grasping mechanism that is adapted to grasp and move the
8 insert onto the sheet; and
9 a nozzle positioned above the track that is adapted to direct a
10 gas stream onto the insert to hold the insert to the sheet, thereby facilitating the passage of the
11 grasping mechanism over both the sheet and the insert when grasping a subsequent insert for
12 a subsequent sheet.

1 12. The mail processing apparatus as in claim 11 wherein said inserting
2 mechanism comprises a bin to hold a stack of inserts, and at least one vacuum finger to pull a
3 bottom insert from said stack where it is grasped by said grasping mechanism.

1 13. The mail processing apparatus as in claim 11 wherein said nozzle is
2 coupled to said grasping mechanism.

1 14. The mail processing apparatus as in claim 11 wherein said nozzle
2 comprises an elongate slit for directing said gas stream.

1 15. The mail processing apparatus as in claim 11 wherein said moving
2 mechanism comprises a pair of fingers that move along said track.

1 16. The mail processing apparatus as in claim 11 further comprising a
2 sensor that is adapted to detect if the insert has been grasped by said grasping mechanism.

1 17. The mail processing apparatus as in claim 16 wherein said sensor
2 comprises a pressure sensor.

1 18. The mail processing apparatus as in claim 16 wherein said sensor
2 comprises an optical sensor.

1 19. The mail processing apparatus as in claim 16 further comprising an
2 indicator that is adapted to indicate if said grasping mechanism fails to grasp said insert.

1 20. The mail processing apparatus as in claim 19 wherein said indicator
2 further comprises an interrupt circuit coupled to and adapted to stop operation of said moving
3 mechanism and said inserting mechanism, if said grasping mechanism fails to grasp said
4 insert.

1 21. The mail processing apparatus as in claim 11 further comprising a
2 sensor that is adapted to detect if more than one insert has been grasped by said grasping
3 mechanism.

1 22. The mail processing apparatus as in claim 21 further comprising an
2 indicator that is adapted to operate if said grasping mechanism grasps more than one said
3 insert.

1 23. The mail processing apparatus as in claim 22 wherein said indicator
2 further comprises an interrupt circuit coupled to and adapted to stop operation of said moving
3 mechanism and said inserting mechanism, if said grasping mechanism grasps more than one
4 said insert.

1 24. A method of processing mail, said method comprising:
2 passing first and second paper sheets along a track; and
3 adding an insert to said first sheet, said adding comprising;
4 grasping said insert with a grasping mechanism;
5 moving said insert onto said first sheet; and

6 holding said insert to said first sheet, said holding comprising
7 directing a gas stream onto said insert, and wherein said holding is adapted to facilitate the
8 passage of the grasping mechanism over both the first sheet and the insert when grasping a
9 subsequent insert for the second sheet.

1 25. The method as in claim 24 further comprising sensing whether said
2 grasping mechanism has grasped only one insert using a sensor.

1 26. The method as in claim 24 further comprising ceasing said passing and
2 adding if said sensor indicates that said grasping mechanism failed to grasp said insert.

1 27. The method as in 24 further comprising ceasing said passing and
2 adding if said sensor indicates that said grasping mechanism grasped more than one said
3 insert.

1 28. A mail processing apparatus comprising;
2 a track;
3 an envelope feeder that is adapted to feed an envelope onto the track;
4 an inserting mechanism that is adapted to place inserts into the
5 envelope; and
6 a nozzle system that is adapted to direct a gas into the envelope to hold
7 the envelope open for the inserts, wherein the nozzle system comprises;
8 a central nozzle that is adapted to direct said gas into a central
9 region of the envelope; and
10 a side nozzle that is adapted to direct said gas near an edge of
11 the envelope.

1 29. The mail processing apparatus as in claim 28 further comprising a gas
2 adjust nozzle to control a flow rate of said gas through said side nozzle.

1 30. The mail processing apparatus as in claim 28 further comprising a
2 fixture to hold said side nozzle to said central nozzle.

1 31. A method of processing mail, said method comprising;
2 providing an insert to be placed into an envelope;

3 feeding the envelope onto a track, said envelope having an opening;
4 and
5 directing a gas into the opening to hold open the envelope to facilitate
6 receipt of the insert by the envelope, said directing comprising;
7 directing the gas with a central nozzle into a central region of
8 the envelope opening; and
9 directing the gas with a side nozzle near an edge of the
10 envelope opening.